

SPONTANEOUS RUPTURE OF INTERNAL ILIAC ARTERY IN PREGNANCY: CASE REPORT

Dražan Butorac¹, Ivka Djaković¹, Vesna Košec¹, Miroslav Kopjar² and Krunoslav Kuna¹

¹Department of Gynecology and Obstetrics, Sestre milosrdnice University Hospital Centre, Zagreb, Croatia;

²Dubrovnik International University, Dubrovnik, Croatia

SUMMARY – Rupture of the internal iliac artery is a rare complication in pregnancy that is associated with maternal and fetal morbidity and mortality. We present a case of a 30-year-old primipara admitted to our department in 39th week of gestation after sudden onset of intense abdominal pain. On admission, the patient was pale, tachycardiac, but with normal blood pressure and afebrile. Symptoms of acute abdomen were clear and surgery was indicated. Diagnosis was confirmed during cesarean section. Enlarged gravid uterus compressed the ruptured artery and prevented heavier bleeding. Acute bleeding due to arterial rupture causes severe symptoms, predominantly abdominal pain. Changes in blood count become significant some time after the onset of rupture. As the gravid uterus compressed the arterial rupture, preoperative bleeding was by far less abundant than the bleeding after the baby had been delivered and the size of the uterus decreased. Any cause of acute abdomen during pregnancy (abruption of the placenta, spleen rupture, visceral artery thrombosis) requires urgent surgical treatment, as well as intraoperative and postoperative intensive treatment. Rupture of the internal iliac artery is a rare complication in pregnancy, but has to be considered as a differential diagnosis of abdominal pain.

Key words: *Iliac artery; Pregnancy; Abdominal pain; Abdomen, acute; Cesarean section*

Introduction

Spontaneous rupture of the internal iliac artery in pregnancy is a rare phenomenon, and as a potentially lethal complication of pregnancy, it was first described in 1778¹. Ruptures of other visceral branches of the internal iliac artery have also been described as a very rare complication of pregnancy, their cause being mostly unknown².

However, some states or illnesses such as endometriosis, congenital diseases of connective tissue that result in less valuable artery walls, such as Ehlers-Danlos syndrome type IV, as well as congenital malformations of blood vessels such as aneurysm, including aneurysm of the internal iliac artery, may cause arterial rupture in pregnancy or in non-pregnant patients³⁻⁸.

Manifestation of aneurysm is reported in 0.1% of general population, with aneurysm of the iliac artery accounting for 1% of these cases. Common iliac artery is involved in 85%, internal iliac artery in 10% and external iliac artery in 1% of cases⁹⁻¹¹.

High blood pressure in the arteries of the uterus or ovaries during muscle activity and strain during pregnancy is an additional risk factor for rupture of the artery^{12,13}. Differential diagnosis may consider premature placenta abruption, spontaneous uterus rupture, and spleen rupture, i.e. aneurysm of spleen arteries. However, nonspecific symptoms of artery rupture may result in unrecognizable severity and urgency of the problem, which can lead to death of both the mother and the child¹⁴. The mortality of mothers with spontaneous rupture of uterus artery has dramatically decreased from 49% to 3.6% owing to improvement of intensive intraoperative and postoperative treatment¹⁵. However, there is still a high percentage of perinatal mortality of 31%¹⁶. Therefore, early diagnosis and in-

Correspondence to: *Ivka Djaković, MD*, Department of Gynecology and Obstetrics, Sestre milosrdnice University Hospital Centre, Vinogradska c. 29, HR-10000 Zagreb, Croatia
E-mail: ivkadj@yahoo.com

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tensive surgical-anesthetic treatment are of crucial importance^{17,18}.

We describe a case of spontaneous rupture of the internal iliac artery in a pregnant woman in 39th week of gestation, where the cause of rupture could not be determined.

Case Report

A 30-year-old primipara was admitted to our ward in 39th week of gestation after sudden onset of intense abdominal pain. She suffered severe abdominal pain of highest intensity in the upper part of the abdomen. The patient had no history of illness. Her gynecologic history showed no records of previous diseases. Pregnancy was followed up regularly. Pap test, test for aneuploidies and cervical smear test were normal. Scans performed during pregnancy did not show any abnormalities. The patient showed minor signs of anemia. On admission, the patient was pale, tachycardiac, but with normal blood pressure and afebrile. Her physiological functions were normal. Palpation of the abdomen showed intense hypogastric pain that increased with lower extremity movements and decreased at rest. Vaginal examination was difficult to perform due to intense pain, but no pathology was found. Ultrasound showed a vital fetus in cephalic position and normal posterior placenta with no signs of abruption. Intrauterine bleeding was not present. Resistance index in both umbilical and medial cerebral artery was normal. Cardiotocography (CTG) showed fetal tachycardia with basal frequency of 170/min, undulatory, but with no accelerations. Blood count was within the normal range, with no signs of anemia. Because of the intense abdominal pain and prepathologic CTG, cesarean section was performed and a vital baby weighing 3190 grams was born, Apgar score 9 and 10 at first and fifth minute, respectively. The placenta appeared normal, with no signs of abruption. After the baby had been delivered, abdominal cavity was rapidly filled with blood. Retroperitoneal hematoma and bleeding from the internal iliac artery were found in the left corner of Douglas cavity. Arterial rupture was sutured and the bleeding was stopped. After thorough inspection and palpation of the iliac artery and its branches, no anomalies or aneurysms were found. During cesarean section, the patient received compatible transfusions and her postoperative recovery was satisfactory.

Discussion

In our patient, the exact cause of spontaneous arterial rupture was not found. We believe that arterial pathology must have been present but we did not prove its existence with either histological or radiological examination.

Iliac artery aneurysm as a potential cause of spontaneous rupture commonly presents with aneurysm of the abdominal aorta, with the incidence of 10%. Isolated finding of internal iliac artery aneurysm is rare, with the incidence of 2%¹⁹⁻²¹. Single iliac artery aneurysm is uncommon, accounting for around 0.03% of cases. It is defined as enlargement of the artery to double size without any signs of another aneurysm in some other location²²⁻²⁶.

After thorough inspection of the relevant literature, we found no case of internal iliac artery rupture in primiparous women. In case of prerupture finding of the aneurysm, elective surgery can be performed, lowering the mortality rate to less than 10%. Retroperitoneal ruptures have better prognosis, whereas intraperitoneal ruptures are commonly associated with sudden death. Ruptures in the rectum, ureter, bladder and rectus muscle have also been described²⁷⁻³². Internal iliac rupture mortality rate in non-pregnant women varies from 50% to 100% and is linked to late diagnosis and bleeding with hemodynamic complications³²⁻³⁴.

Although correct preoperative diagnosis in our case was compromised with pregnancy, pregnancy was a beneficiary circumstance. The symptoms of acute abdomen were clear and surgery was indicated. Diagnosis was confirmed during cesarean section. Enlarged gravid uterus compressed the ruptured artery and prevented heavier bleeding.

Acute bleeding due to arterial rupture causes severe symptoms, predominantly abdominal pain. Changes in the blood count become significant some time after the onset of rupture³¹⁻³⁴. As the gravid uterus compressed the arterial rupture, preoperative bleeding was by far less abundant than the bleeding after the baby had been delivered and the size of the uterus decreased.

Any cause of acute abdomen during pregnancy (abruption of the placenta, spleen rupture, visceral artery thrombosis) requires urgent surgical treatment, as well as intraoperative and postoperative anesthesiology treatment. Blood losses can be enormous. Surgery with the average blood loss of almost 5 L has been re-

ported, with successful outcome after 11 doses of packed erythrocytes were administered³⁵.

Abdominal pain with acute blood count drop has to be taken seriously³⁶. Gestational age is one of the important factors when deciding on performing cesarean section. In cases of earlier gestation, fetal maturity has to be considered, especially when clear symptoms of fetal and maternal vital threat are not present. Although ultrasound and magnetic resonance scan should serve for better diagnosis, they could also postpone surgical treatment. The sign of abdominal pain in pregnant woman should be considered seriously; the more so, ultrasound finding of free liquid in the abdomen requires surgical treatment after considering fetal maturity³⁶.

Conclusion

Rupture of the internal iliac artery is a rare complication in pregnancy. It predominantly presents with abdominal pain of unknown origin. Gestational age and fetal maturity are important factors when deciding on urgent delivery by cesarean section. Hematologic tests could be insufficient in determining urgent intervention. Additional radiology examinations could prolong diagnosis and postpone surgical treatment, thus worsening the prognosis. Bleeding becomes more severe intraoperatively when the compressive factor of the gravid uterus is removed. Rupture of the internal iliac artery is a rare complication in pregnancy, but has to be considered as a differential diagnosis of abdominal pain.

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Sažetak

SPONTANO PRSNUĆE UNUTARNJE ILIJAČNE ARTERIJE U TRUDNOĆI: PRIKAZ SLUČAJA

D. Butorac, I. Djaković, V. Košec, M. Kopjar i K. Kuna

Prsnuće unutarnje ilijačne arterije je rijetka komplikacija u trudnoći, a može uzrokovati majčinu i/ili fetalnu smrt. Prikazuje se slučaj tridesetogodišnje prvorotkinje koja je primljena na našu kliniku u 39. tjednu trudnoće s iznenadnom i intenzivnom boli u trbuhu. Kod prijma trudnica je bila izrazito blijeda, afebrilna, tahikardna, ali s normalnim krvnim takom. S obzirom na to da su postojali jasni simptomi akutnog abdomena kirurški zahvat je bio neophodan. Dijagnoza prsnuća unutarnje ilijačne arterije potvrđena je tijekom carskog reza. Uvećana trudna maternica je pritiskala prsnutu krvnu žilu i sprječavala obilnije krvarenje. Akutno krvarenje zbog prsnuća arterije uzrokuje snažnu bol u trbuhu. Promjena u krvnoj slici bila je značajna tek nakon nekog vremena od prsnuća žile. Kako je gravidna maternica pritiskala mjesto krvarenja, prijeoperacijsko krvarenje je bilo znatno manje od krvarenja koje se dogodilo nakon što je porođeno dijete i nakon dekompresije. Akutni abdomen u trudnoći, bila to abrupcija posteljice, prsnuće slezene ili visceralna arterijska tromboza, zahtijeva hitno kirurško liječenje, ali i intraoperacijsku i poslijeoperacijsku intenzivnu skrb. Iako rijetka komplikacija u trudnoći, prsnuće unutarnje ilijačne arterije treba razmotriti kao diferencijalnu dijagnozu kod akutnog abdomena.

Ključne riječi: *Ilijačna arterija; Trudnoća; Abdominalna bol; Abdomen, akutni; Carski rez*